



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,340	02/25/2004	Hyung-Joon Kim	YOU101	4561
7590	01/05/2009		EXAMINER	
Donald J. Perreault Grossman, Tucker, Perreault & Pfleger, PLLC 55 South Commercial Street Manchester, NH 03101			ZHU, WEIPING	
ART UNIT	PAPER NUMBER			
	1793			
MAIL DATE	DELIVERY MODE			
01/05/2009	PAPER			

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/786,340	<b>Applicant(s)</b> KIM ET AL.
	<b>Examiner</b> WEIPING ZHU	<b>Art Unit</b> 1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 12 December 2008.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1,3-13 and 15 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1, 3-13 and 15 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-166/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 12, 2008 has been entered.

### ***Status of Claims***

2. Claims 1, 3-13 and 15 are currently under examination wherein claims 1 and 12 have been amended in applicant's amendment filed on November 12, 2008.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/42638 in view of Kucera et al (US 2003/0075245 A1). Since WO 99/42638 is in Japanese, the examiner relies on the corresponding US patent Kanai et al. (US 6,607,587 B1) to establish the rejection ground.

Kanai et al. ('587 B1) et al. teaches a process of forming a non-chromium anticorrosion coating on metal surfaces such as steel, aluminum, copper, galvanized

steel, etc. (abstract, col..2, lines 53-60, col. 3, lines 6-10 and col. 7, lines 1-5). Kanai et al. ('587 B1) further teaches that its coating composition comprising a thiocarbonyl group containing compound such as thiourea in the amount of 0.2-50 g/l (col. 3, line 45 - col. 5, line 52) and aqueous resins such as acrylic, epoxy and/or polyester resins in the amount of 1-80 wt% (col. 6, lines 12-33). Kanai et al. ('587 B1) further teaches that the coating composition can be applied by roll coating (col. 7, lines 59-63) and followed by curing at a temperature of 40°C to 250°C (co1.7, lines 31- 33).

Regarding claim 1, Kanai et al. ('587 B1) teaches the thiocarbonyl group containing compound such as thiourea. Kanai et al. ('587 B1) further teaches that the thiocarbonyl group containing compound is dissolved in water or alkaline solution (col. 5 lines 41-43), which reads on the claimed dissolving step (a). Since the coating composition of Kanai et al. ('587 B1) comprises both thiocarbonyl group containing compound and aqueous resin, Kanai et al. ('587 B1) inherently teaches the claimed mixing step (b). Kanai et al. ('587 B1) also teaches the claimed coating step (c) and the curing step (d).

Regarding claim 12, since the coating composition of Kanai et al. ('587 B1) comprises both thiocarbonyl group containing compound and aqueous resin, Kanai et al. ('587 B1) inherently teaches the claimed mixing step (a). Kanai et al. ('587 B1) also teaches the claimed coating step (b) and the curing step (c).

Regarding claims 1 and 12, Kanai et al. ('587 B1) does not teach the claimed organosulfur compounds. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the thiocarbonyl group

containing compound such as thiourea of Kanai et al. ('587 B1) with claimed organosulfur compounds (e.g. thiocarbamates) with expected success, because these compounds are functionally equivalent in terms of being used as modifying agents in a metal treatment composition as disclosed by Kucera et al ('245 A1) (abstract and paragraph [0069], pages 7 and 8). See MPEP 2144.06.

Regarding claims 5-8 and 15, Kanai et al. ('587 B1) teaches the polymeric resin and the types of metallic substrate as claimed.

Regarding claim 9, Kanai et al. ('587 B1) further teaches that the anticorrosive coating may contain a solvent such as alcohols to improve the uniformity and smoothness of the coating film (col. 6, lines 62-67). Since the anticorrosive coating comprises both an organosulfur containing compound and a polymeric resin, the alcohol solvent as taught by Kanai et al. ('587 B1) reads on the solvent for the organosulfur compound as claimed. In addition, one of ordinary skill in the art would have found the claimed ethanol, 1-propanol, and/or 1-butanol solvent obvious solvent choices for the anticorrosive coating composition of Kanai et al. ('587 B1) and can be applied with expected success since ethanol, 1-propanol, 1-butanol are alcohols.

Regarding claims 10-11, Kanai et al. ('587 B1) further teaches that the concentration of the organosulfur containing compound is 0.2-50g/l (col. 5, lines 45- 52) and the coating composition can be applied by roll coating (col. 7, lines 59-63) and followed by curing at a temperature of 40°C to 250°C (col. 7, lines 31-33). The concentration of the organosulfur containing compound and the curing temperature as taught by Kanai et al. ('587 B1) overlap the claimed organosulfur compound

concentration and the claimed curing temperature. Therefore, a *prima facie* case of obviousness exists. See MPEP 2144.05 I. The selection of claimed organosulfur compound concentration and the curing temperature ranges from the disclosed ranges of Kanai et al. ('587 B1) would have been obvious to one skilled in the art since Kanai et al. ('587 B1) teaches the same utilities in its' disclosed organosulfur containing compound and curing temperature ranges.

Regarding claim 13, Kanai et al. ('587 B1) further teaches that the metallic substrate may be steel plated by galvanization (col. 3, lines 6-10 and col. 7, lines 1-5), which encompasses the claimed electrogalvanized steel since an electrogalvanized steel is a steel plated by galvanization. In addition, the term "electrogalvanized", as recited in instant claim 13, is a process limitation. Since the instant claim is directed to the metal substrate and an electrogalvanized steel produces the same zinc coated steel substrate as a regular galvanized steel, the examiner concludes that the steel plated by galvanization as taught by Kanai et al. ('587 B1) reads on the claimed electrogalvanized steel.

4. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) and further in view of Thompson et al. (US 4,684,507).

Regarding claim 3, Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) does not teach that the claimed organosulfur compound is an alkanethiol as recited in claim 3.

Thompson et al. ('507) teaches a corrosion-inhibiting compound produced by

reacting an alkylthiol such as octyl thiol or dodecylthiol with methyl methacrylate and diethylene triamine (Examples 1-2). The examples of Thompson et al. ('507) further suggest that the alkylthiol and acrylic resin (i.e. methyl methacrylate) are mixed in solution form.

Regarding claim 3, it would have been obvious to one of ordinary skill in the art to have incorporated the alkylthiol such as dodecylthiol as taught by Thompson et al. ('507) into the coating composition of Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) to substitute the organosulfur containing compound in order to form a corrosion inhibitor that is particularly useful for the protection of metal equipment of gas and oil wells as taught by Thompson et al. ('507) (col. 14 line 54 - col. 15 line 30). In addition, the alkylthiol such as dodecylthiol as taught by Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) and further in view of Thompson ('507) reads on the claimed alkanethiol with 10-21 number of hydrocarbons.

Regarding claim 4, even though Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) and further in view of Thompson et al. ('507) does not explicitly teach the claimed 1-octadecanethiol, one of ordinary skill in the art would have found it obvious to use the claimed 1-octadecanethiol in coating composition of Kanai et al. ('587 B1) in view of Kucera et al ('245 A1) and further in view of Thompson et al. ('507) with expected success since 1-octadecanethiol is also an alkylthiol, therefore, should behave similarly to dodecylthiol.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 3-13 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/786,379 (App ('379)), corresponding US PGPUB 2005/0186347 A1 in view of Thompson et al. ('507).

The claims of App ('379) teach a process of coating metal surfaces, such as electrogalvanized steel sheets, zinc, aluminum, copper sheets, etc, with a protective film. The coating process comprises dissolving, alkanethiol such as 1-octadecanethiol in a solvent such as ethanol, treating the metal surface with the dissolved alkanethiol solution and curing the treated metal surface.

However, App ('379) does not explicitly teach the claimed mixing of alkanethiol with a polymeric resin.

The teachings of Thompson et al. ('507) are discussed in paragraph 4 above.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the polymeric resins such as methyl methacrylate and diethylene triamine as taught by Thompson et al. ('507) into the coating solution of App'379 in order to provide improved corrosion inhibition that is particularly useful for the protection of metal equipment of gas and oil wells as taught by Thompson et al. ('507).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Response to Arguments***

6. The applicant's arguments filed on November 12, 2008 have been fully considered but they are not persuasive.

The applicant argues that the substitution of the compounds of Kucera et al ('245 A1) based on the functional equivalence of the nitrogen containing group is simply not enough; that is, the functionality of the thiocarbonyls taught as being necessary by Kanai et al. ('587 B1) would not be achieved if one was to substitute any of the compounds of Kucera et al ('245 A1) based on the inclusion of nitrogen. In response, the examiner notes that the substitution of the thiourea preferably having a nitrogen or oxygen ion simultaneously as taught by Kanai et al. ('587 B1) (col. 3, line 55 to col. 4, line 13) with a nitrogen containing thiocarbamate of Kucera et al ('245 A1) is based on the functional equivalence of these compounds as modifying agents in a metal treatment composition as disclosed by Kucera et al ('245 A1) (abstract and paragraph [0069], pages 7 and 8). The substitution is not based on the inclusion of nitrogen as asserted by the applicant. The inclusion of nitrogen and oxygen functional groups in thiourea and/or thiocarbamate is desirable as suggested by both Kanai et al. ('587 B1) and Kucera et al ('245 A1). Therefore, the ground of rejection based on the functional equivalence of thiourea and thiocarbamate as discussed above is proper and maintained. An expectation of success for the substitution would obviously be present. The functionality of thiourea taught as being necessary by Kanai et al. ('587 B1) would obviously be achieved if one skilled in the art was to substitute the thiourea of Kanai et al. ('587 B1) with a thiocarbamate of Kucera et al ('245 A1).

***Conclusion***

7. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose

telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

WZ

12/12/2008